

certainly be included. But, any reconnections that pre-date the completion and approval of the mitigation plan may not be counted as mitigation. Therefore, NASA has halted all MINWR reconnections, or wetland rehabilitation in general, until the plan is approved.

A longer term and, perhaps, more far-reaching issue is wetland management within the MINWR. Current management policies and practices regarding reconnected and isolated impoundments in the MINWR are in conflict with the restoration objectives of SWIM and IRLNEP. To help settle this management conflict, the SJRWMD is coordinating a multi-year study of the ecological response of MINWR wetlands to different management alternatives commonly applied throughout the IRL. The results of this study will help formulate recommendations for management that would best serve the restoration and wildlife goals of the agency stakeholders. Implementing such recommendations should assure that those impoundments that are and will be reconnected are managed to achieve the highest possible functional and biological diversity and connectivity to the uplands and open estuary.

In the Central IRL, private ownership is a major issue. As early as 1990, when the SJRWMD became proactively involved with coastal wetland rehabilitation, it was known that the rate of progress in reconnections could be stymied following the reconnection of all publicly available impoundments. The reason is private ownership. Without an owner's consent or public acquisition, a privately owned impoundment cannot be reconnected. Over the last 3 years, neither consent nor acquisition has successfully transpired regarding any of the remaining 1,267 acres of privately owned and isolated impoundments in the Central IRL (Figure 5-13). Therefore, acquiring and reconnecting these wetlands are the main objectives of this program in the Central IRL over the next several years (see further discussion in *The Next 5 Years*, below). More information about progress and challenges regarding the rehabilitation and management of coastal wetlands in the North and Central IRL projects are provided below.

Projects and Progress To Date

Please refer to the Coastal Wetlands section in Chapter 2 for a description of the general background, purpose and scope of the projects. The information provided below is strictly progress information related to the North and Central IRL.

Rehabilitation of Impounded Wetlands. The North IRL contains over 20,000 acres of herbaceous salt marsh wetlands. Over 19,750 acres of marsh are impounded; the remaining acreage is primarily the un-impounded area around the mouth of Turnbull Creek (Figure 5-12).

All of the impounded acreage outside the MINWR in the North IRL was reconnected prior to 1994 (e.g., Scottsmoor impoundments) and most of the MINWR impoundment reconnections were done since 1994. In fact, most of the impounded marshes in the North IRL are in the MINWR. The MINWR is on land owned by NASA but managed by USFWS. In the MINWR, over 14,100 acres of impoundments have been reconnected or fully restored (i.e., impoundment dikes completely removed). The fully restored impoundments are T-10-K and T-9 (~670 acres combined). From a SWIM program perspective, restoration is generally preferred since it provides greater ecological benefits than reconnection alone and does not require active management.

The isolated impoundments that remain in the MINWR (5,374 acres) are along Banana Creek or south of Banana Creek on the western shore of Merritt Island (Figure 5-12). Not all of these impoundments can be targeted for reconnection; for example, those that are immediately adjacent to NASA's Shuttle Launch facilities are excluded from consideration. But, efforts to reconnect the other targeted impoundments have temporarily ceased until NASA is assured that it will be credited for all future reconnections in the MINWR as mitigation of environmental impacts caused by its future development activities. This assurance can be given when NASA delivers a mitigation plan that is acceptable to the SJRWMD and the USACE. The SJRWMD is hopeful that NASA's mitigation plan can be completed and approved soon (perhaps by the time this plan update is published). Perhaps upon plan approval, the 2,000 acres of targeted impoundments can be immediately reconnected.

In the Central IRL, there are approximately 4,000 acres of coastal wetlands. Over 3,300 acres of these mostly mangrove-dominated wetlands are impounded. The impounded area reconnected to date stands at 2,052 acres; much of that acreage was reconnected prior to 1994. Slightly over 1,260 acres of wetlands remains isolated and nearly all are privately owned. Progress toward reconnecting these isolated impoundments will depend on the success of public acquisition. Acquisition of these wetlands was made a priority of the SJRWMD through the IRL *Blueway* program. To date, no firm purchase contracts have been executed, although a few could be imminent. The public purchase of one or a few of these impoundments in the development-intense Central IRL or Banana River Lagoon would help establish the market value of these lands, promoting additional public acquisitions.

In summary, nearly 14,400 acres of impounded wetlands in the North IRL were reconnected or completely breached; another 2,052 acres were similarly rehabilitated in the Central IRL.

Wetlands Management Research Initiative. The Wetlands Management Research Initiative, currently underway in the MINWR, is a logical response to an interagency debate about what policies and practices constitute appropriate management of reconnected impoundments. The rationale for the Wetlands Initiative is covered in some detail in Chapter 2 (in **Coastal Wetlands** and same sub-section heading). Wetland management alternatives, those in practice and those proposed, seem to be as varied as the wetland resources they seek to enhance. Consequently, the basic question that the Initiative is attempting to answer is "Which alternative or mix of alternatives is best with respect to serving both the USFWS mandates imposed on the MINWR wetlands and the variety of other wetland resource goals viewed as equally important by agencies of the state and IRLNEP?" Based on the Initiative study, recommendations for management will be developed for consideration by the USFWS for application at the MINWR. The general intent of the recommendations is to establish new guidelines that would reflect continued adherence to USFWS management mandates while seriously addressing other state and federal restoration objectives in the management of MINWR wetlands.

The Wetlands Initiative study is about halfway into its 3-year schedule as of December 2001. It is being generously funded by EPA (\$550,000 at least), and is matched by SJRWMD, FDEP Bureau of Survey and Mapping, USGS, USFWS, and a host of other entities engaged in the research. More detail about the Wetlands Initiative can be obtained by accessing the project web site: <http://dugong.ksc.nasa.gov/wil/>.

Although the Initiative study and its recommendations will be directly applicable to the impounded herbaceous marshes of the North IRL and Mosquito Lagoon, there are anticipated management implications regarding mangrove-dominated impoundments in the Central and South IRL.

Rehabilitation of Other Impacted Wetlands – Dragline-Ditch Impacts. The North IRL has approximately 200 acres of dragline-impacted marsh. Nearly all of the dragline impacts are on public lands. Restoration of dragline-impacted marshes in the North IRL will likely be a cooperative endeavor by SJRWMD, NASA, and USFWS/MINWR.

In the Central IRL, there are 317 acres of dragline-impacted wetlands. Most of these wetlands are in Indian River County and are privately owned. A detailed plan of restoration of these dragline-impacted wetlands will be developed in the near future (see also Chapter 2 for discussion of the Lagoon-wide plan to restore these degraded wetlands). Because private ownership is an issue here as it is with the remaining isolated impoundments, land acquisition will certainly dictate the plan's implementation schedule for the Central IRL.

Creation of Shoreline Vegetative Habitats. The project dealing with red mangrove (*Rhizophora mangle*) plantings does not cover the North IRL because this area is the species' northern limit in range. Plantings of red mangrove may not survive the colder winters here as they would the milder winters in Central and South IRL.

Mangrove plantings have been conducted at 22 sites in the Central IRL since 1995. Some of these sites have been expanded by multiple, follow-up plantings. Plantings are monitored to evaluate success and the planting technique has been refined accordingly (refer to Chapter 2, same sub-section heading, for details on the planting techniques).

Land Acquisition – Blueway Program. Most of the wetlands in the North IRL are in public ownership, and therefore, land acquisition is not as major an issue as it is in the Central IRL. Nonetheless, there are 1,650 acres of wetlands and adjacent uplands in the North IRL included in the IRL *Blueway* program (Figure 5-12). Approximately 870 acres of these lands, known as Pine Island, were purchased by SJRWMD and Brevard County.

Land acquisition is of greater strategic importance to the wetland restoration effort in the Central IRL than in the North. Over 4,000 acres of wetlands and adjacent uplands in the Central IRL were included in the *Blueway* program (Figure 5-13). Recently, a parcel of land, Inlet Groves, consisting of about 290 acres on the south Brevard barrier island, and abutting other publicly owned wetlands, were purchased. Unfortunately, progress on other potential acquisitions has been slow generally due to budgetary constraints and sellers' high asking prices.

In 1999, SJRWMD entered into a contract with The Nature Conservancy (TNC) to provide "land agent" assistance by contacting owners, conducting appraisals and even negotiating acquisition contracts with the sellers under the guidance of the SJRWMD. This collaboration between the TNC and SJRWMD was intended to expedite the acquisition process and it has, but just to the point of negotiating seller asking prices. The SJRWMD hopes that a spate of successful negotiations and parcel acquisitions will occur in 2002/03, and will continue at a high rate over the coming years.

The Next 5 Years

Rehabilitation of Impounded Wetlands. The goal over the next 5 years is to reconnect or restore all the remaining targeted impoundments in the North IRL, all located in the MINWR – over 4,500 acres. The objectives for the next 2 years are to resolve the mitigation and management issues with NASA and USFWS/MINWR and to reconnect at least 2,000 acres of wetlands in the MINWR.

Continued progress in rehabilitating impounded wetlands in the Central IRL depends on acquiring privately owned wetlands. Acquisition is complex and time consuming; thus, realistic objectives are impossible to predict.

Wetlands Management Research Initiative. The same agencies that manage wetlands in the North IRL and Central IRL are directly involved in or are being made aware of the Wetlands Research Initiative: USFWS, Brevard Mosquito Control District, and Indian River Mosquito Control District. These agencies can readily apply the research findings to their respective management policies and programs that affect impounded wetlands. It is expected that they will participate in the development of final management recommendations following the conclusion of the research in 2003.

Rehabilitation of Other Impacted Wetlands – Dragline-Ditch Impacts. After development of a plan in 2003 to rehabilitate dragline-ditched wetlands, the SJRWMD will develop activity schedules and a prediction of per-annum progress within the North and Central IRL. The plan will scope out what can be practically achieved within fiscal year time frames and how many years it may take to complete this program. At this time, it is not possible to realistically determine how much “draglined” acreage can be rehabilitated in 5 years. It should be noted that progress in the North IRL is partly contingent on the SJRWMD and USACE approvals of NASA’s mitigation plan because rehabilitation of dragline-impacted wetlands is likely to be included. It is possible that the USACE may further facilitate the rehabilitation of these impacted wetlands by including this effort in the IRL-North Feasibility Study.

Creation of Shoreline Vegetative Habitats – Emphasis on Red Mangrove Plantings. No plantings are planned for the North IRL. In the Central IRL, approximately 10 planting events per year over the next 5 years is the goal set by the Environmental Learning Center in Indian River County, the lead organization in this program.

Land Acquisition – Blueway Program. The objective over the next 5 years is to acquire most, if not all, of the *Blueway* wetlands, especially the impounded wetlands. Continued funding of acquisition support services should be maintained to help achieve that objective. The SJRWMD hopes that a number of willing sellers will consider and sign acquisition agreements. If the appraised values are in close agreement with the sellers’ asking prices, then substantial progress is possible toward meeting the 5-year objective. Progress on acquisitions is certainly critical to further progress in reconnecting impounded wetlands in the Central IRL.

Table 5-8. The 5-Year Plan List of Coastal Wetland Projects for the North and Central IRL

- **Acquire privately owned impounded wetlands, a high priority under the *Blueway* program (~1,270 acres)**
- **Pursue acquisition of an additional 4,380 acres of targeted lands under the *Blueway* program**
- **Reconnect all remaining and available isolated impoundments; most are in MINWR (~4,500 acres) or are privately owned (~1,270 acres)**
- **Complete Wetlands Management Research Initiative; develop management recommendations**
- **Initiate plan to rehabilitate dragline-impacted wetlands (~400 acres) in the North and Central IRL**
- **Complete shoreline planting projects at ~10 sites/year over the next 5 years in the Central IRL**

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